

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A communication apparatus comprising:

signal ~~receive~~ receiving means for receiving a signal signals, sent from ~~an identical~~ a sender by a code division multiple access communication system as diffusion code multiplied signals (102) comprising plural paths (111₁-111_i), the received signals being processed in different time-based search ranges of a predetermined time interval, which search ranges are different from each other based on a starting time of signal receipt in start timing of receive;

correlation value computation means ~~which computes~~ computing a correlation value of correlation between i) the signal signals in each search range received by the signal receive receiving means and ii) a pilot signal used as a known signal, the computation achieved by receiving a plurality of signals sent at different times from the sender and performing averaging of the received plural signals in each search range;

averaging times control means for setting the number of times of the signal averaging in such a manner that the number of times of the signal averaging is smaller in a search range in

which the correlation value computed by the correlation value computation means is higher;

path detection means which permits the input of the results of computation for each search range by the correlation value computation means and, when the signal sent from the sender is present in the search ranges, detects this signal; and

finger means for superimposing, in terms of waveform, paths detected by the path detection means on each other to regenerate the signal sent from the sender.

2. (currently amended) A communication apparatus comprising:

signal ~~receive~~ receiving means for receiving a signal ~~signals~~, sent from ~~an identical~~ a sender by a code division multiple access communication system, the signal received in time-based search ranges of a predetermined time interval which are different from each other in based on a start of signal receipt timing of receive;

correlation value computation means which computes a correlation value ~~of correlation~~ between i) the signal in each search range received by the signal ~~receive~~ receiving means and ii) a pilot signal as a known signal by receiving a plurality of signals sent at different times from the sender and performing averaging of the plural received signal in each search range;

search range width change means for combining a plurality of search ranges, in which the correlation value computed by the correlation value computation means is low, into one search range;

path detection means which permits the input of the results of computation for each search range, after change by the search range width change means, by the correlation value computation means and, when the signal sent from the sender is present in the search ranges, detects this signal; and

finger means for superimposing, in terms of waveform, paths detected by the path detection means on each other to regenerate the signal sent from the sender.

3. (currently amended) The communication apparatus according to claim 1, wherein the signal ~~receive~~ receiving means comprises a plurality of delay units different from each other in delay level to set a plurality of receive start timings.

4. (currently amended) The communication apparatus according to claim 1, wherein,

the correlation value computation means comprises circuit devices for examining the correlation of received signals in the plurality of search ranges, and

the path detection means comprises further circuit devices for performing path detection, and

circuits and the further circuits are provided independently of each other, and

the number of the circuit devices and the further circuit devices provided is the same as the number of search ranges.

5. (currently amended) The communication apparatus according to claim 1, wherein,

for each search range there is provides a pair of circuit devices for examining the correlation of received signals ~~in the plurality of search ranges~~ and performing path detection ~~are provided~~, and

the processing of received signals is carried out through time division by the number of times equal to the number of search ranges.

6. (original) The communication apparatus according to claim 3, wherein the delay unit varies the delay level according to the results of detection in the path detection means.

7. (new) A communication apparatus, comprising:

a receive end that receives diffusion code multiplied signals (102) sent from a sender by a code division multiple access communication system, the received signals being in plural received paths (111_1-111_i);

plural delay units ($103_1 - 103_M$), disposed parallel to one another, accepting the received signals based on time of signal receipt to define plural different time-based search ranges, and outputting respective delayed signals;

a correlator (104_i) connected to each delay unit (103_i) to receive, as an input, one outputted delayed signal for correlation with a waveform of a known signal, and to provide a delay profile of the received delayed signal;

an averaging section (105_i) connected to an output of each correlator to receive, as an input, the outputted delay profile, and to average the received delay profile, an averaged delay profile being output from the averaging section;

a path detector (106_i) connected to an output of each averaging section to receive, as an input, the averaged delay profile for path detection;

a correlator control unit (107) connected to outputs of each path detector to receive, as inputs, results of the path detectors, the correlator control unit connected to control each delay unit and each averaging section; and

a finger section (108) connected to outputs of each path detector to receive, as inputs, the results of the path detectors.

8. (new) The communication apparatus of claim 7, wherein, wherein the correlator control unit (107) varies a delay level of each delay unit based on the results of the path detectors.

9. (new) The communication apparatus of claim 7, wherein,

a first path (111₁) of the received paths and a second path (111₂) are present as high signal-to-noise ratio paths within a first search range (110₁) for computation of a correlation value in the first correlator (104₁), and

a third path (111₃) is present as a high signal-to-noise ratio path within the second search range (110₂).

10. (new) The communication apparatus of claim 7, wherein, each averaging sections (105₁ - 105_M) averages the received delay profile output, a number of times of averaging within each averaging section is varied by control from the correlator control unit (107).

11. (new) The communication apparatus of claim 10, wherein, the correlator control unit reduces the number of times of averaging as detected signal-to-noise ratio within a corresponding correlator increases.

12. (new) The communication apparatus of claim 11, wherein, the correlator control unit increases the number of times of averaging as detected signal-to-noise ratio within the corresponding correlator decreases.

13. (new) The communication apparatus of claim 7, wherein,

the apparatus comprises four delay units, four correlators, four averaging section, and four path detectors, the four path detectors commonly connected to the correlator control unit (107).

14. (new) The communication apparatus of claim 7, wherein,

the time-based search ranges of the plural delay units ($103_1 - 103_M$) are variable under control of the correlator control unit.